PROCEEDINGS

OF THE

AMERICAN PHILOSOPHICAL SOCIETY.

VOL. I. AUGUST, SEPT. & OCT. 1840. No. 13.

Stated Meeting, August 21.

Present, twenty-six members.

Mr. DU PONCEAU, President, in the Chair.

The following donations were received:—

FOR THE CABINET.

A Collection of Turkish Coins, commencing with those of Othman, founder of the present Dynasty.—*From John P. Brown, U. S. Dragoman, at Constantinople.*

A communication was read from Mr. Forshey, of Louisiana, entitled "Observations upon the Meteors of August, by C. G. Forshey," which was referred to a Committee.

Mr. Boyé stated, that Mr. Clarke Hare and he had succeeded in producing a perchloric ether.

It is a colourless liquid, heavier than water, and of a sweet, but afterwards acid taste, resembling that of the oil of cinnamon. Its most remarkable property is its explosiveness. Not only by ignition, but even by friction or percussion, it explodes with extreme violence, and cannot therefore be handled without the greatest precaution. When it is borne in mind, that perchloric acid, containing seven atoms of oxygen, loosely combined with chlorine, is in this substance, in contact with sufficient carbon and hydrogen to be converted into carbonic oxide and water, the violence of its explosion will easily be accounted for.

Mr. Boyé further stated, that he hoped to be soon able to give a farther account of this substance; of the way in which it is obtained, and of some other similar reactions, which they are now engaged in studying.

Mr. Vaughan exhibited from M. Alexandre Vattemare a fac simile of an original grant by Charles of England to William Penn; and also a fac simile of a deed of sale, by William Penn, of 20,000 acres of land, for 800 pounds sterling;—the original deed being in Penn's handwriting.

Mr. Walker made an oral communication on the subject of the August shower of meteors.

These meteors returned, this year, on the 9th instant, and were observed at the High School Observatory, by Mr. Walker, as well as by Messrs. Forshey, of Louisiana, and Hamilton, of this city. The evenings of the 10th and 11th, being partly cloudy, and the moon nearly full, no observations were made. The evening of the 9th, however, was distinguished by all the peculiarities hitherto noticed in the August period. The following table exhibits a classification of the meteors from memoranda, concerning each meteor, made at the time of its appearance.

Meteors of 9th August, 1840. Comparative Brilliancy.	Of 68 Meteors seen from 8h. to 14h., by one observer, moon nearly full.	Of 103 Meteors seen after setting of moon, at 14h., by one observer.	Visible path of Meteor in arc of great circle.	Duration of visibility of Meteor and Train.	Length of Train visible at once.	Duration of visibility of Train.
			°	s	°	s
Thrice that of Jupiter,	1	1	40	4.5	20	1.7
Twice ,,	6	0	35	3.6	15	1.0
Equal to ,,	12	2	25	2.5	12	0.8
First magnitude	12	14	20	1.8	9	0.6
Second ,,	32	17	12	1.2	5	0.5
Third ,,	5	33	7	0.9	4	0.4
Below third ,,	none	36	6	0.6	4	0.4

From an inspection of the table, Mr. Walker remarked, it will readily appear, that these meteors differ from ordinary *shooting stars*, in their greater brilliancy, longer apparent paths, and the greater duration of their trains. Their most important peculiarity, however, is the tendency of their apparent paths towards a common point of

convergence in the celestial sphere, or in other words, their apparent divergence from a common radiant point near the head of Perseus.

The existence of a common radiant point near γ Leonis, for the great display of meteors, November 12th, 1833, was noticed by Messrs. Olmsted, Twining, Aiken, Riddle, and others. The same may be inferred from the descriptions of Humboldt and Ellicott, in 1799; of Briggs, and others, in 1832; and it has been manifest in every return of the November shower witnessed since.

The attention of observers, Mr. Walker observed, was first called to the August period, by Quetelet, in 1836; and in 1837, precise observations were made at the Berlin and Breslaw Observatories. These were reduced by the formulæ given by Mr. Erman, in No. 385 of Schumacher's *Astronomische Nachrichten*, and have determined with precision the common point of convergence for August 10th, 1837. In the same year, Mr. Forshey, then Professor of Mathematics in Jefferson College, Mississippi, noticed, about the middle of August, a great number of meteors, originating chiefly about the region of Cassiopea. It appears, also, that Mr. Schaeffer,* of New York, searching for a radiant point on the 9th of August, 1837, placed the same near the north pole. Mr. Herrick,† at New Haven, who had previously invited attention to this period, in the United States, on the same evening, found this point farther north than in the November shower; but determined nothing farther. In 1838, these meteors were seen by Mr. Kreil, at the Milan Observatory, but no radiant point was deduced. In the United States, however, Professor Forshey, from 65 meteors seen in one hour, August 9th, at Rock Island, Iowa, concluded the radiant to be situate within a circle of 2° radius, centering in the sword cluster of Perseus. In 1839, Mr. Herrick,‡ with others, at New Haven, found the radiant point to be near the sword cluster, on the 9th and 10th, being nearly stationary. On the 10th, at 13h., they found it to be near θ Persei.

Mr. Forshey, in 1839, August 10th and 11th, at St. Louis, again noticed the radiant point in the same position as in 1838. But the position of this point, or rather of the point of convergence of their apparent paths, has been computed with great precision from the observations at Berlin, August 9th, 10th, and 11th, and at Königsberg, August 10th and 11th. The mode of observation adopted at the European observatories has been to mark on a map the points of origin and disappearance, and, subsequently, to compute, by Mr. Erman's formulæ, the common point of convergence. As the August meteors become visible chiefly in the northern zones, it was thought that greater precision would be attained by noting, besides the point of origin and disappearance, also the part of Perseus or Cassiopea, intersected by the apparent path of the *conformable* meteors traced backwards through one of these constellations. The following table gives the point of convergence thus deduced from three separate groups of observations at Philadelphia, together with the position of this point, as determined at the European observatories, and the probable error of a single result, and of the final result computed in the usual manner. The general agreement in the positions will be seen. The smallness of the probable errors of the Philadelphia results is attributed to the method employed in observing; by which a greater proportion of the meteors seen was marked *unconformable*, and excluded from the general estimate.

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* Silliman's Journal, Vol. 33, p. 134.

† Ibid., Vol. 33, p. 176 and 359.

‡ Ibid., Vol. 37, p. 328.

August Meteors. Place of Observation and date.	Apparent R. A. of point of convergence.	Apparent Dec. of the point of convergence.	No. of Observations.	Probable Error of single result.	Probable Error of final result.
	°	°		°	°
1837. Berlin, August 10	217.18	—57.26	46	∓20.1	∓ 2.96
,, Breslaw, ,, ,,	221.76	—51.41	200	∓19.5	∓ 1.38
1839. Berlin, ,, 9	224.86	—50.18	50	∓11.9	∓ 1.68
,, ,, ,, 10	223.88	—52.39	48	∓13.3	∓ 1.92
,, ,, ,, 11	218.45	—51.05	43	∓13.5	∓ 2.06
,, Königsberg, ,, 10	214.85	—55.59	75	∓21.0	∓ 2.42
,, ,, ,, 11	215.11	—55.29	74	∓17.4	∓ 2.02
1840. Philada. *9d 10h 57m*	216.14	—55.76	12	∓ 2.3	∓ 0.67
,, ,, 9 13 4	214.71	—55.43	15	∓ 4.1	∓ 1.05
,, ,, 9 15 6	219.25	—55.12	29	∓ 1.2	∓ 0.22

Mr. Walker referred to some of the analytical conclusions drawn by Mr. Erman* from the fact, which the Philadelphia observations of this year go to confirm, that these meteors appear to converge nearly to a common point in the heavens.

"1st. Mr. Erman concludes, that these bodies are of a *cosmical* origin; that they move in a continuous ring-formed stream of not less than 3° in breadth; that the plane of the centre of this stream is inclined at least 56°, probably more than 90°, and not exceeding 124° to the plane of the ecliptic,—an inclination which hitherto comets alone have been known to possess.

"2d. That their least velocity in space Aug. 10.5th, is 55-hundredths that of the earth in its orbit, giving them a period round the sun of 128 days; that their greatest velocity is 143-hundredths that of the earth, which would locate them at this time on the perihelion of a parabola or ellipse of period indefinitely great.

"3d. That to remove this uncertainty of their velocities, between 55 and 143-hundredths that of the earth, it is only necessary that two observers, at a distance apart, should trace with precision the apparent path of the same meteor, and one of them at least its duration. This condition had not yet been fulfilled in Europe, otherwise the entire elements of their orbit would have been approximately determined.

"4th. That their perihelion distances are not less than 2-hundredths nor more than 97-hundredths of the earth's mean distance from the sun.

"5th. That they are in their descending node when visible Aug. 10.5th, and that their distance from the sun, in the ascending node, is not less than 7-hundredths, and may be several times the earth's mean distance from the sun. Hence, even if they are a continuous ellipse-formed stream, it is only in one of these possible distances, viz., that of the earth from the sun, that this stream would be visible to a spectator on the earth, when traversing its ascending node. If near the sun, their aggregate might appear as spots on the solar disc, or might intercept some of the solar light and heat; if far beyond the earth, no traces of them would be found.

* Astr. Nachr., Nos. 385, 390 and 404.

"6th. That the earth traverses this meteor-stream from the 5.5th to the 7.5th of February. The fact that no such stream has of late years been noticed, shows that the first condition of No. 5, does not prevail. Mr. Erman thinks that the diminution of the normal increase of temperature at this date, as ascertained at several stations, for many years past, by Mr. Madler, of Berlin, may possibly warrant the conclusion, that the second condition takes place, and that the meteor-stream at this time is between the earth and sun. That the first condition may have prevailed in 1206, and the second in 1208, seems not improbable from history. This apparent change in the appearance of the meteor-stream Mr. Erman ascribes to the secular variations of its elements; the possibility of which is admitted by Olbers and Bessel.

"7th. That the greatest possible apparent motion of the common point of convergence of their apparent paths, consistent with the existence and observed position of this point, is *one-tenth* of a degree of a great circle *westward, in an hour.*"

Mr. Walker remarked, that though much pains had been bestowed upon determining their apparent paths and duration, at the High School Observatory, he had as yet received no corresponding observations which could throw light on the third conclusion of Mr. Erman. The motion of the radiant—if any—according to Mr. Forshey's and his own observations, would seem to be in a *southeasterly* direction, of about *one-half* of a degree of a great circle *per hour*, a phenomenon not reconcilable with the analysis of Mr. Erman.

In conclusion, Mr. Walker referred, for the details of the Philadelphia observations, to Mr. Forshey's paper read this evening.

Dr. Hays communicated the particulars of a case of inability to distinguish certain colours, occurring in a man, a patient in Wills Hospital, under the care of Dr. Fox.

This case, Dr. Hays remarked, presented the following points of interest:—

1st. It confirmed the correctness of the observation made by Dr. Hays, in a former communication, that no reliance can be placed on the account of their own cases, given by those who labour under this defect; and that their statements should never be received as accurate, until after careful and repeated examination.

The subject of the case under notice had been admitted into the hospital with partial amaurosis, and was not aware of his inability to distinguish colours until he was informed of the defect by Dr. Fox. He then maintained, very confidently, that it had come on since his loss of the power of seeing objects, and mentioned several circumstances to prove that it was of recent occurrence. Nevertheless, on

being minutely and closely questioned, it appeared beyond all doubt, and even the patient himself had to admit the fact, that the defect must have always existed.

Again, after being shown various coloured papers, which he was requested to name, and satisfying all who witnessed the experiment, that he could distinguish but two colours, viz., yellow and blue, he named correctly the colours of a red strawberry and green leaf, which were presented to him. This surprised all present. It occurred, however, to Dr. Hays, that the patient had learned the usual colour of these objects, and that his answers were dictated by this knowledge, and not from a real perception of colour. Experiments, made with a view of determining this point, most conclusively established the correctness of Dr. Hays's suspicion.

2dly. The case tends to confirm the accuracy of the laws announced by Dr. Hays on a former occasion, as governing the defect of vision under notice. This patient could perceive but two colours, yellow and blue. His perception of the former was perfect, of the latter somewhat less so.

Dr. Hays stated, that the laws just alluded to, so far as ascertained by his investigations, were the following:—

1st. *Entire inability of distinguishing colours may co-exist with a perfect ability of perceiving the forms of objects.*

This constitutes the highest grade of the defect. Individuals who labour under it can recognise differences of intensity of colour, so that whilst a diversity of colours of the same intensity appears to them to be a uniform colour, they accurately designate, as lighter or darker, different shades of the same colour, or of various colours. The rainbow appears to them as a band of a uniform colour, darker at one side, and gradually becoming lighter towards the other.

2dly. *The defect may extend to all but one colour, and in such case the colour recognised is always* YELLOW.

The perception of this colour may be perfect, or limited to some shades.

3dly. *The defect may extend to all but two colours, and in such case the colours recognised are always* YELLOW *and* BLUE.

In some of these cases, the perception of the latter colour is less perfect than of the former. Individuals who labour under this grade of the defect, though able to recognise, perfectly, yellow and blue, cannot distinguish them when combined, and forming green.

The laws which govern the other grades of this defect, Dr. Hays remarked, remain to be determined.

There are certain persons who can accurately recognise yellow and blue, and some who can recognise red, who cannot distinguish green; but whether or not there are individuals who can recognise the three primitive colours accurately, and are yet unable to distinguish the secondary colours, must be left, Dr. Hays remarked, to further observation to determine.

It also remains to be ascertained, whether any person, having an imperfect perception of yellow, can recognise blue; or with an imperfect perception of yellow and blue, or of the latter alone, can distinguish red.

Dr. Hays, from the publication Committee, stated, that the first part of the new volume of the Transactions of the Society would be published in a few days.

Mr. Vaughan reported the death of Mr. Prinsep, of Calcutta, a member of the Society.

On motion, it was resolved, that a committee be appointed to arrange the Franklin Papers deposited with the Society, (see Proceedings, No. XII, p. 253,) and to report a plan for the better preservation of the Manuscripts of the Society.

Dr. Dunglison, reporter, presented No. 12 of the printed Bulletin of the Proceedings of the Society for May, June, and July, 1840.

Stated Meeting, September 18.

Present, twenty-six members.

Dr. PATTERSON, and subsequently DR. CHAPMAN, Vice-Presidents, in the Chair.

The Committee, consisting of Dr. Bache, Prof. Bache, and Mr. Booth, to whom was referred a communication, by Dr. Hare, entitled "On the Change effected in the Nitrates of Potash and Soda, by the limited application of Heat, with a view to obtain pure Oxygen; and, also, on a Liquid and a

Gaseous Ethereal Compound, resulting from the reaction of Nascent Hyponitrous Acid on Alcohol," &c., reported in favour of publication in the Transactions of the Society, and the publication thereof was ordered accordingly.

The Committee, consisting of Dr. Patterson, Prof. Henry, and Mr. Walker, to whom was referred a letter, addressed by Dr. John Locke to Prof. Bache, containing observations to determine the Horizontal Magnetic Intensity and Dip, at Louisville, Kentucky, and Cincinnati, Ohio, reported certain extracts for publication.

After describing the apparatus used in these observations, Doctor Locke states, in detail, the results of two series of observations, each made with three horizontal needles, and concludes from the mean of them, that the relative horizontal intensities at Louisville and Cincinnati, are as 1 to 0.9727. The dates of the observations were March 7th, 10th, 11th, and 14th, 1840, at about noon of each day. The correction for temperature, in each of the three needles used, was obtained by experiments which are fully described, and which gave the following coefficients: for needle No. 1, 0.000125, for No. 2, 0.000145, No. 3, 0.000058.

The magnetic dip at Cincinnati, as determined by two series of observations, each with two needles, in March, 1840, was 70° 25′.5, and by one series, in April, 70° 28′.8; and the dip at Louisville, by three series, at nearly the same date, in March, 69° 54′.9.

The relative total intensities thus deduced for a period corresponding to March 10th, 1840, are Cincinnati, 1.000, Louisville, 1.003.

A communication was read from Mr. C. G. Forshey, of Louisiana, entitled "An Account of the Great Mound near Washington, Adams County, Mississippi," which was referred to a committee.

Mr. Du Ponceau presented to the Society a Manuscript by the late Mr. Heckewelder, containing the names of various trees, shrubs and plants, in the Lennape (Del.) language, which was referred to the Historical and Literary Committee.

Dr. Horner read a communication entitled "Note of the Remains of the Mastodon, and some other extinct Animals collected together in St. Louis, Missouri. By W. E. Horner,

M.D., Professor of Anatomy in the University of Pennsylvania," which was referred to a committee.

Mr. Ord directed the attention of the Society to the following passage in Audubon's "Birds of America." Article, *Small-headed Flycatcher.*

"When Alexander Wilson visited me at Louisville, he found, in my already large collection of drawings, a figure of the present species, which, being at that time unknown to him, he copied, and afterwards published in his great work, but without acknowledging the privilege that had thus been granted to him. I have more than once regretted this, not by any means so much on my own account, as for the sake of one to whom we are so deeply indebted for his elucidation of our ornithology."

"This attack upon the reputation of a member of this Society," said Mr. Ord, "one who, during the long period that he dwelt amongst us, was noted for his integrity, ought not to be suffered to pass without examination."

Mr. Ord submitted to the inspection of the Society, Wilson's Autograph Diary of his journey from Philadelphia to New Orleans, viâ Pittsburg and Louisville, commencing on the 30th of January, 1810. From this diary it appears, that he arrived at Louisville on the evening of Sunday, the 18th of March; and departed thence for Frankfort and Lexington, on the morning of Friday the 23d. During his stay at Louisville, he was occupied three days in soliciting subscribers, and endeavouring to get materials for his work, and one day he was employed in writing to his friends at home. Four days, consequently, were passed in Louisville, one afternoon of which was devoted to shooting, in company with Mr. Audubon; and a portion of a morning was appropriated to examining that gentleman's collection of crayon drawings; in which Wilson states he saw the figures of two new birds, both *Motacillæ* or Warblers; but he does not state that he saw a figure of a *Muscicapa* or Flycatcher. He does not say a word respecting the loan of Mr. Audubon's drawings, nor does he give the least reason to suppose that he made a copy of any of the drawings; on the contrary, he positively asserts that he did not get one *new* bird at Louisville.

Mr. Ord proceeded to examine the style of both Audubon's and Wilson's drawings, and pointed out the peculiarities of each author. He declared, that the figure of Wilson's Small-headed Flycatcher differs in no respect from his ordinary style; that it bears the signet of paternity on its very front. But, as it might be objected that this mode of reasoning is inconclusive, from the circumstance of several of Mr. Audubon's birds bearing a resemblance to those of Wilson, Mr. Ord obviated this objection, by stating that Mr. Audubon had not scrupled to appropriate the labours of Wilson to his own use; inasmuch as the figure of the female March Blackbird, (Birds of America, plate 67,) and that of the male Mississippi Kite, (same work, plate 117,) had both been copied from the American Ornithology, without the least acknowledgment of the source whence they had been derived. Mr. Ord thought that the charge of plagiarism came with an ill grace from one who had been guilty of it himself, as in the instances above mentioned.

Wilson states, that he shot the bird figured and described in his 6th volume, page 62, in an orchard, on the 24th of April. Mr. Ord confirmed this statement, by declaring to the Society, that he himself was with Wilson on the day in ques-

tion; that he saw and examined the specimen; and that Wilson assured him that it was entirely new to him. Wilson was then residing at the Bartram Botanic Garden, near Philadelphia.

Mr. Ord farther read to the Society a letter addressed to him by the artist, Mr. Lawson, who engraved the plate in which the Small-headed Flycatcher is figured. This gentleman affirms, that all the plates, which he engraved for the American Ornithology, were from Wilson's own drawings; and that with respect to the plate in which the Small-headed Flycatcher appears, *specimens* of all the birds there represented accompanied the drawings; and he, after getting his outline, *worked from them*. Mr. Ord laid before the Society a proof of the etching of this plate, and remarked, that from the minuteness of the details, the *point* of the engraver had evidently a greater share in producing the desired result, than even the pencil of the ornithologist.

Mr. Lea, from the Publication Committee, reported, that the first part of the 7th volume of the Transactions of the Society was completed, and presented a copy thereof for the inspection of the members.

Mr. Vaughan stated, that agreeably to the instructions of the Society, he had purchased the Anamitic and Latin and Latin and Anamitic Dictionaries, lately published by the Right Reverend Father Taberd, Bishop of Isauropolis, and Vicar General of Cochin China; in two volumes, 4to. Serampore, 1838. (See Proceedings of July 3.)

Dr. Hays made an oral communication relative to the operation recently devised for squinting, and to its effects in modifying the adjusting power of the eye for near and distant objects.

Dr. Hays stated, that certain phenomena which he had observed in one of the cases in which he had divided the internal rectus muscle, for the cure of squinting, seemed to favour the theory of the adjustment being made by an alteration in the form of the eye, under the conjoint action of the four recti muscles; a theory rejected by the best physiologists of the day.

The case, the details of which Dr. Hays related, was that of a gentleman thirty-six years of age, who had squinted with his left eye since the age of five years. Both the eyes were presbyopic; the left, however, was most so, and required for distinct vision a glass three Nos. higher than the other eye; the respective Nos. being 11 and 14. Vision with the left eye, even by the aid of a glass, was not perfect, words printed in long primer being scarcely legible. After the division of the internal rectus muscle, vision not only improved, but the

eye became less presbyopic, and at the present time, three weeks since the operation, said Dr. Hays, the glass (No. 14,) which had been before adapted to the patient's left eye, now magnifies so much, that it is unpleasant to read with it; and he is able to see best with glass No. 11. On careful comparison he is unable to perceive any difference in the size of objects viewed with either eye through this glass; and an opera glass, adjusted to one eye, seems equally well adapted for the other. These facts, Dr. Hays remarked, show, that a change has taken place in the left eye, and this probably consists in an elongation of its antero-posterior diameter, resulting from the operation.

Dr. Hays also made some observations on the mode in which squinting causes an impairment of the function of vision, and stated, that from a great number of cases which he had examined, it appeared to him to be a general rule, that the greater the degree of strabismus, the more imperfect is the sight of the affected eye. In all the cases in which he had operated, the sight had been improved.

Dr. Dunglison stated, that he was not prepared to admit, from this single observation, that the accommodating power of the eye is owing to the pressure of the four recti muscles on the eyeball; the division of any one of them not being likely, in his opinion, to rectify the results of compression, if it existed in the case in question. He was disposed to refer a great agency to the contraction and dilatation of the pupil in facilitating distinct vision at different distances, and he alluded to an experiment made on one of his own eyes whilst a student of medicine. This consisted in applying some freshly prepared extract of belladonna to the eyelids. The consequence was, that the pupil soon became so much dilated, that the iris was almost invisible. The focus of this eye was found to be at twice the distance of that of the sound organ; but in proportion as the effects of the belladonna passed off, and the pupil approached its natural size, vision became more and more distinct, and the focus nearer the natural. In the open air, all objects, except those near, were distinctly seen, but on entering a room, everything was obscured.

Dr. Dunglison expressed the belief, that squinting is often owing to impairment of vision in one eye, in consequence of a want of correspondence in the sensibility of the two retinæ; the mind, therefore, acquires the habit of attending to the impression made on the sound eye only, and the other, being neglected, is drawn into a position to interfere, as little as possible, with the better vision of its fellow.

Professor Bache alluded to a case of strabismus, which seemed to him to favour a suggestion thrown out by Dr. Hays, that defective vision in the inverted or everted eye, might be owing to stretching of the optic nerve. In this case the eye became everted; and simultaneously, vision with it was impaired. Ultimately, indeed, the sight of both eyes was lost.

Professor Bache communicated the following observations, made by Mr. Rümker, Director of the Observatory of Hamburg, on the second comet of Galle.

Longitude of the Observatory of Hamburg, 39*m*. 54*s*. E. of Greenwich.

Date. 1840.	Mean Time at Hamburg.			Apparent AR of Comet in Time.			Apparent Declinat. of Comet in Ascen.			Number of Observations.
	h	*m*	*s*	*h*	*m*	*s*	°	′	″	
January 29	9	55	28.89	21	17	51.990	62	18	59.15	13
,, 30	8	11	23.07	21	31	31.545	61	55	28.19	15
February 2	15	47	45.98	22	16	53.236	59	55	35.53	15
,, 3	8	58	46.24	22	25	51.671	59	23	38.57	12
,, 4	12	45	54.87	22	39	52.004	58	28	7.73	4
,, 8	8	38	19.30	23	19	35.128	55	1	12.81	14
,, 9	7	59	24.03	23	28	23.452	54	4	3.05	11
,, 11	8	30	24.43	23	45	9.317	52	2	24.91	14
,, 12	6	59	54.97	23	52	16.184	51	5	23.71	11
,, 13	6	37	19.04	23	59	19.388	50	4	58.17	4
,, 17	7	27	39.88	0	24	28.638	45	59	10.16	7
,, 20	10	24	44.96	0	40	30.642	42	54	50.14	9
,, 21	8	27	9.89	0	44	44.511	42	2	10.16	5
,, 22	7	36	19.92	0	49	0.566	41	7	51.14	8
,, 23	10	19	4.72	0	53	42.774	40	6	6.82	5
,, 24	7	21	20.47	0	57	13.625	39	18	17.17	9
,, 25	6	44	58.76	1	0	58.806	38	26	14.25	2
,, 28	7	44	8.40	1	11	43.889	35	50	13.13	11
,, 29	7	30	35.35	1	14	57.249	35	1	34.78	11
March 1	7	52	35.50	1	18	8.888	34	9	25.57	3
,, 3	7	30	17.55	1	24	1.221	32	40	4.76	10
,, 4	7	18	0.15	1	26	48.581	31	55	31.03	11
,, 5	7	36	57.85	1	29	32.423	31	10	41.80	10
,, 6	7	25	47.30	1	32	8.990	30	28	10.08	9
,, 7	7	41	29.37	1	34	42.030	29	45	41.59	7
,, 9	7	35	22.20	1	39	32.121	28	24	27.00	8
,, 11	7	45	35.77	1	44	5.870	27	6	18.05	7
,, 16	18	4	11.57	1	54	28.674	24	5	17.24	6
,, 17	8	5	25.47	1	56	24.191	23	31	20.68	2
,, 18	8	0	6.46	1	58	15.616	22	58	12.00	16
,, 20	8	26	38.67	2	1	52.951	21	53	17.10	3
,, 21	7	53	58.95	2	3	37.332	21	22	54.45	8
,, 22	7	52	56.85	2	5	19.245	20	52	0.14	4
,, 24	8	17	15.92	2	8	41.044	19	51	52.52	8

Mr. Justice stated to the Society, that the Astronomical Instruments ordered for the High School Observatory, from Münich, had arrived, and invited the members to inspect them. Whereupon, Professor Bache proposed the following resolutions, which were adopted by the Society.

Resolved, That the Committee on Astronomical Observations be requested to examine the instruments recently imported from Münich, for the Observatory of the Central High School, by the Controllers of the Public Schools, and to report in relation to them to the Society.

Resolved, That the same Committee be requested to consider and report to the Society, the best application of the sum of money in the possession of the Society, which was collected for the erection of an Astronomical Observatory.

Mr. Vaughan reported the death of Lucien Bonaparte, Prince of Canino, a member of the Society, aged 66.

A letter was read by Mr. Vaughan from Mr. Charles P. Fox, presenting to the Society, in his own name and that of his sisters, the collection of the original letters and papers of Benjamin Franklin. (See Proceedings, July 17.)

On motion of Mr. Ord, the Secretary was directed to transmit to Mr. Fox a special vote of thanks for his valuable donation.

Stated Meeting, October 2.

Present, twenty-nine members.

Dr. CHAPMAN, Vice-President, in the Chair.

The following donations were received:

FOR THE CABINET.

Sundry Specimens of Minerals, &c., from the southern and western parts of the Union, from Mr. C. G. Forshey, of Louisiana.

1. A coal recently found on the Arkansas River, about 300 miles beyond the capital of the State. The stratum crops out on the banks of the river, between high and low water mark, in a line of hills called "Spadra Bluffs," one of the Ozark range. A shaft has been sunk by John Walker, the discoverer, an enter-

prising citizen of Natchez, Miss. At the depth of 35 feet, he found the coal 4 to 5 feet thick. The following analysis is from Professor L. D. Gale, of Jefferson College, Mississippi.

"*Extracts from the Journal of the Laboratory.*

"Specimen of coal furnished by Prof. Forshey, of Natchez, February, 1840. 100 grs. of the coal (specific gravity = 1.336, and of jet black), were put into a close vessel and heated to redness for two hours, and weighed while warm. Amount lost = 9.75 grs. The residuum, consisting of coal and earthy matters, was again heated, but in an open platinum crucible, until all the carbon was burned away. Loss by the combustion = 80.81 grs. The earthy matters left, removed from the crucible, weighed 9.44 grs. The specimen, then, is composed of

Volatile matter, per cent., ...	9.75
Carbon, per cent., ...	80.81
Earthy matters, ...	9.44

"The volatile matters were found to be composed chiefly of water and carburetted hydrogen, with a mere trace of sulphur.

"The coal belongs to the class called Bituminous Coal, but has not enough to admit of coking by heat. . . . . It is richer in carbon than any of the four varieties of English Bituminous Coal."

It ignites easily without the aid of charcoal, and burns with a clear white blaze, without smoke, leaving a very small quantity of white ashes and earthy matter.

2. A Shell, Unio Asperrimus, Lake Concordia, La. 3. Two Shells, Unio Trapezoides, Lake St. Joseph, La. 4. One Shell, Unio Pustulatus, Lake Bruin, La. 5. Single valves of two Shells, U. Subrotundus, Lake St. Joseph. 6. Two Shells, Unio Parvus, Lake Concordia, La. 7. Five species of fossil Coralloides, from Jackson County, Iowa Territory, 1838. 8. Two Cyathophylla and an Orthocera, from the Chert, above the mountain limestone of Copper Creek, Iowa, 1838. 9. Specimen of Alabaster, laminated sulphate of lime, from a cavern near Charleston, Iowa, 1838. 10. A cast, in Chalcedonic Quartz, of a Pentamerus, from the Chert of Iowa, 1838. 11. Three Iron Ores, Hematite, Crystallized Nodular Oxide, and Pipe Ore, Jackson County, Iowa, 1838. 12. A Cyathphyllum, and a Coralloides, from Calloway County, Missouri, 1839. 13. A specimen of Lignite, and the laminated Gypsum which enveloped it, in the form of a concretion. From the base of the Natchez Bluff, 170 feet below the surface. When obtained, the specimen was rotted wood, so decayed as to be easily crushed between the fingers. The ligneous fibre was very palpable, and showed it to be *oak*. After twenty days' exposure, it was covered with a fine frost of Copperas, (Sulph. Iron,) and was transformed into beautiful lignite. 14. A piece of Brick, from the Mounds on Lake St. Joseph, Louisiana. Its porousness, Mr. F. found from some specimens imperfectly burnt, arises from the entire combustion of the moss used to give the mortar consistency. 15. An Iron Ore, from the pudding-stone forming at the base of the Natchez Bluffs. When first broken the cavity was filled with white potter's clay, coated with brown ochre at the surface. 16. A specimen of the Spanish Moss, Tillandsia Usneoides, from Natchez, Mississippi.

The Committee, consisting of Dr. Horner and Dr. Hays, appointed on the 3d of January last, to report to the Society a description of a donation of Mastodon Bones, made to the

Society by a subscription of members, gave in their report, which was directed to be printed in the Transactions of the Society.

The Committee, consisting of Dr. Hays, Mr. Peale, and Dr. Dunglison, to whom was referred a paper entitled "Note of the Remains of the Mastodon, and some other extinct animals, collected together in St. Louis, Missouri; by W. E. Horner, M.D., Professor of Anatomy University of Pennsylvania," recommended that an abstract of the same should be inserted in the Bulletin of the Society's Proceedings; and on motion, the report was accepted, and the committee discharged.

The collection referred to, was made by Mr. Albert Koch—a German resident in St. Louis, for the last five years—and has been obtained principally from two localities, Rock Creek, twenty miles south of St. Louis, and Gasconade County, two hundred miles above the mouth of the Missouri River. It consists of two hundred or more Teeth of the Mastodon and of the American Elephant. A dozen or more Lower Jaws of the Mastodon, with very numerous specimens of other parts of the head and skeleton generally, though there is no perfect head.

The most remarkable specimen is a head of an animal, which Mr. Koch calls nondescript, and considers to have been from four to six times the size of an elephant, though Dr. Horner esteems it extremely difficult to establish this. In the present mode of exhibition, the head shows a central oblong amorphous part, which measures six feet in length by two or three in width. It is furnished with enormous tusks, eleven and three-twelfths feet long from their roots, and nine or ten inches in diameter—one foot and three inches of their length being inserted into the sockets. These tusks are semicircular, and stand out horizontally, with the concavity backwards. Thus placed, they are fifteen feet in a straight line, from the tip of the one to the tip of the other. Notwithstanding they were found in this position, very just doubts, Dr. Horner thinks, may be entertained of its being the natural one, as, in a state of decay of the alveolus, they might readily gravitate outwards, so as to assume that direction subsequent to the death of the animal. This specimen was in fact very much decayed, when Mr. Koch found it, and appears to have been fractured by rocks falling on it from the bluff above. The means taken to pre-

serve it obscure the surface of the bones, as well as their configuration, and in attaching the fragments together, some have been put very much out of their position. For example, the glenoid cavity of the right side is monstrously far from the hind tooth, and is laterally much beyond its line; the intermaxillary bones are too long, and on comparing the position of the posterior molar teeth of the upper jaw with that of the lower, the upper molar teeth are found to be ten inches or more in advance of the lower, a relation so false and so unsuited to mastication, that it is not at all probable nature formed them thus. The molar teeth are four in number in each jaw, two on a side; the posterior one is seven inches long by four wide; the anterior, four and a half inches long by four wide. The conformation of the teeth is exactly that of the Mastodon, and the ridges and denticules are scarcely worn at all, a proof that the animal was not old. The upper part of the cranium of this animal is defective. The general configuration of the head is so amorphous, the fragments of which it is composed have their position so imperfectly regulated, and the whole surface is so coated with glue and paint, to preserve it, that an exact examination was impracticable. Its length is so extraordinary, that Dr. Horner considers it can scarcely be received as natural, and he is inclined to the opinion, from its dental system, that it belongs to the Mastodon; that by some accident the remains of two heads were found in the same line; that if there be but one, it has been much fractured, and a large quantity of extraneous matter blended with it, which it is difficult to distinguish. The latter conjecture, Dr. Horner thinks, is rendered more probable by the admission of Mr. Koch, that these bones were cemented to a layer of gravel a foot and a half in thickness, with such tenacity, that the separation was accomplished with the greatest difficulty.

In the same collection of fossil bones is to be found the skeleton, nearly complete, of a Mastodon of very large size: the ribs are wanting, and the upper part of the cranium. The transverse diameter of the head, on a line with the foramen magnum, is three feet. The os femoris, in a perpendicular line, stands three feet nine inches high, and all the other bones are in this proportion. An estimate of the altitude of the animal when living, founded upon careful observations, instituted with the same view on the skeleton from Bucyrus, Ohio, recently obtained by the Society, would leave the inference, that the former animal has reached a height of from twelve to thir-

teen feet at the shoulders. This animal, in a popular advertisement on the subject of the Museum by Mr. Koch, is rated at eighteen feet in height, an altitude so great as to exceed much the evidence derivable from a measurement of the longest bones of the extremities, and the inductive and comparative estimate thence obtained.

The internal table of the cranium, the brain case, is entire, with a small surface of the contiguous cellular structure of bone in another fragment of the Mastodon. This forms so complete an oval body, that, in Dr. Horner's opinion, it is somewhat difficult to conceive that its shape was the result of merely accidental causes; Dr. Horner indeed thinks it rather authorizes the inference, that it had been chiselled or hammered designedly into that shape by the human contemporaries of the animal.

There is also a small head, eighteen or twenty inches long, with tusks ten or eleven inches long in the upper jaw, and four mastodon teeth on each side of each jaw. This head is somewhat broken. The os frontis and the face, so far as Dr. Horner could judge, are so placed in regard to their front surface as to form a deep circular concavity, approximating, in shape, a fragment in the cabinet of the Society. Whether it ought to be viewed merely as a young Mastodon Giganteum, or another species of the Mastodon, Dr. Horner considers to be at present doubtful.

There are two radii of the Mastodon with the epiphyses or articular ends detached, owing to the youth of the animal: these pass for the arm bones of a giant fourteen or fifteen feet high, when his skeleton was complete. A similar misapprehension exists in regard to the vertebræ of a quadruped, probably a buffalo or young mammoth, which are strung together in a vertical position, and pass for the back bone of a giant of similar height.

Another interesting relic has been denominated by the proprietor, Missourium Kochii, the first name in commemoration of its locality, the second of himself, its discoverer. It belongs undoubtedly, Dr. Horner states, to the Mastodon race; was not much inferior in size to the Elephant, and was furnished with tusks and indications of a proboscis having been attached to it. The tusks are four and a half feet in length, and at the roots have a circumference of eighteen inches; they are only half an inch apart at the socket, and project right and left, with the concavity forward. The teeth have the mammillose or Mastodon shape and conformation, and are three and a half

inches in length by two and a half in breadth. The lower jaw is wanting.

There is an os humeri, probably of a megalonyx, which measures in length one foot eight inches, the ulna of the same animal, and also other bones, probably the radii, with some of the last phalanges.

Dr. Horner stated, that his sketch of this rich accumulation of fossil remains, and their examination, were very imperfect, and the less instructive to him, for the want of standards of comparison in perfect skeletons, and in plates, neither of which means of elucidation exist in St. Louis, and he expressed a hope, that "their diligent and deserving collector, would furnish the scientific world with exact plates of such as are rare or unknown."

A communication was read from Miss Margaretta H. Morris, on the subject of the Hessian Fly, and of the Seraphion Destructor,—a parasite of the same. The communication was referred to a committee.

Mr. Lea read a paper, entitled "Descriptions of New Freshwater and Land Shells, by Isaac Lea," which was referred to a committee.

Mr. Nuttall read a communication, entitled "Descriptions of New Species and Genera of Plants in the Natural Order Compositæ, collected on a Tour across the Continent to the Pacific, a Residence in Oregon, and a visit to the Sandwich Islands and Upper California, during the Years 1834 and 1835, by Thomas Nuttall," which was referred to a committee.

Dr. Hays made some remarks on a printed description of two fossil animals, by Mr. Koch, of Missouri; the one a Mastodon, and the other probably, Dr. Hays thought, a Tetracauledon; the latter denominated, by Mr. Koch, Missourium Kochii.

Stated Meeting, October 16.

Present, thirty-one members.

Mr. Du Ponceau, President, in the Chair.

The following donation was received:

FOR THE CABINET.

Five Notes of Mr. Law's Bank. Paris, 1720.—*From Mr. Du Ponceau.*

The Committee, consisting of Mr. Lea, Dr. Wood, and Dr. Coates, on a communication, entitled "Descriptions of New Species and Genera of Plants, in the Natural Order Compositæ, collected on a Tour across the Continent to the Pacific, a Residence in Oregon, and a Visit to the Sandwich Islands and Upper California, during the Years 1834–5, by Thomas Nuttall," reported in favour of publication, which was ordered accordingly.

In this paper, Mr. Nuttall makes a large addition to the Flora of North America, consisting of fifty new genera, with numerous species of plants, in the order Compositæ.

The Committee, consisting of Mr. Nicklin, Prof. Bache, and Mr. Lukens, on a communication, entitled "Descriptions of new Fresh-water and Land Shells, by Isaac Lea," reported in favour of publication, which was ordered accordingly.

Mr. Lea's communication furnishes new facts towards a geographical distribution of the Naïades. It contains descriptions of forty-six new species of that family, two Melaniæ, one Carocolla and one Cyclostoma.

Of the Naïades, eleven species are from the Chattahoochee River. The shells found in this river, seem to differ from those of the waters that fall into the Atlantic, as several of the species have folds; and also from those of the Ohio and its eastern tributaries, as none of them have tubercles;—facts which are curious, inasmuch as the head waters of the Chattahoochee are not far distant from those of some of the Atlantic rivers, on the one side; and, on the other, from

some of the tributaries of the great river Tennessee, which falls into the Ohio.

Two interesting species are from New Holland, one of which has a double wing; and three are from Java.

The whole number of recent species of Naïades admitted by Mr. Lea, is 369; being 282 more than Lamarck described.

Unio cucumoides. Testâ plicatâ, latissimâ, emarginatâ, subcylindraceâ; valvulis subcrassis; natibus vix prominentibus; epidermide nigrâ; dentibus cardinalibus parvis, tuberculatis; lateralibus longissimis rectisque; margaritâ albâ. *Hab* Hunter's River, New South Wales.—*Dr. Jay.*

Unio delphinus. Testâ alatâ, latâ, compressâ, posticè biangulatâ, valdè inæquilaterali; alâ elevatâ, acuminatâ, duplici; valvulis subcrassis; natibus vix prominentibus; epidermide tenebroso-fuscâ; dentibus cardinalibus parvis, crenulatis; lateralibus longissimis rectisque; margaritâ albâ et iridescente. *Hab.* New Holland.—*G. Von den Busch, M.D.*

Unio orientalis. Testâ transversâ, subinflatâ, valdè inæquilaterali; valvulis subcrassis; natibus sub-prominentibus, ad apices undulatis; epidermide luteâ, nitidâ; dentibus cardinalibus longis; lateralibus longis subcurvisque; margaritâ albâ et iridescente. *Hab.* Java?—*G. Von den Busch, M.D.*

Unio Javanus. Testâ ovatâ, subinflatâ, valdè inæquilaterali, posticè subbiangulatâ; valvulis subcrassis; natibus vix prominentibus; epidermide luteofuscâ; dentibus cardinalibus minimis; lateralibus longis curvisque; margaritâ albâ et iridescente. *Hab.* Java.—*G. Von den Busch, M.D.*

Unio Cincinnatiensis. Testâ nodosâ, quadratâ, inflatâ, emarginatâ, inæquilaterali; valvulis crassis; natibus elevatis; epidermide luteâ, valdè radiatâ; dentibus cardinalibus subgrandibus; lateralibus sublongis rectisque; margaritâ albâ. *Hab.* Ohio River, Cincinnati.—*T. G. Lea.*

Unio pilaris. Testâ rotundatâ, inflatâ; valvulis crassis; natibus elevatis; epidermide striatâ, tenebroso-fuscâ; dentibus cardinalibus subgrandibus; lateralibus longulis subrectisque; margaritâ albâ. *Hab.* French Broad and Holston Rivers, East Tenn.—*Mr. S. M. Edgar.*

Unio Geddingsianus. Testâ ovatâ, subinflatâ; valvulis subtenuibus; natibus prominulis; epidermide fuscâ, radiatâ; dentibus cardinalibus compressis erectisque; lateralibus longis rectisque; margaritâ albâ vel salmonis colore tinctâ. *Hab.* Congaree River, So. Car.—*Prof. Ravenel.*

Unio tuberosus. Testâ nodosâ, triangulari, emarginatâ; valvulis crassis; natibus elevatis; epidermide luteâ, striatâ; dentibus cardinalibus magnis; lateralibus parvis rectisque; margaritâ albâ. *Hab.* Cany Fork and Cumberland Rivers, Middle Tenn.—*Mr. S. M. Edgar.*

Unio cuneolus. Testâ triangulari, compressâ, valdè inæquilaterali; valvulis subcrassis; natibus elevatis: epidermide luteâ, striatâ, radiis maculatis; dentibus cardinalibus parvis; lateralibus longis rectisque; margaritâ albâ et iridescente. *Hab.* Holston River, Tenn.—*Mr. S. M. Edgar.*

Unio Lesueurianus. Testâ subrotundâ, subinflatâ; valvulis crassis; natibus prominentibus; epidermide fuscâ, striatâ, radios masculatos habente; dentibus cardinalibus subgrandibus; lateralibus parvis rectisque; margaritâ albâ et iridescente. *Hab.* Cany Fork and Holston Rivers, Tenn.—*Mr. S. M. Edgar.*

Unio Stonensis. Testâ ovatâ, valdè compressâ, planulatâ, valdè inæquilaterali; valvulis crassis; natibus prominulis, ad apices undulatis; epidermide luteo-fuscâ; dentibus cardinalibus parvis; lateralibus longis, crassis curvisque; margaritâ salmonis colore tinctâ et iridescente. *Hab.* Stone's River, Tenn.—*Mr. S. M. Edgar.*

Unio lenis. Testâ obovatâ, inflatâ; valvulis tenuibus; natibus vix prominentibus, ad apices undulatis; epidermide luteâ, densissimè radiatâ; dentibus cardinalibus compressis; lateralibus parvis; margaritâ albâ et iridescente. *Hab.* Stone's River, Tenn.—*Mr. S. M. Edgar.*

Unio plenus. Testâ triangulari, inflatâ; valvulis crassissimis; natibus elevatis et crassis; epidermide luteo fuscâ, rugosâ; dentibus cardinalibus magnis; lateralibus brevibus subrectisque; margaritâ albâ et iridescente. *Hab.* Ohio River, near Cincinnati.—*T. G. Lea.*

Unio tener. Testâ ovatâ, valdè compressâ, valdè inæquilaterali; valvulis tenuibus; natibus subprominentibus; epidermide luteo-fuscâ; dentibus cardinalibus parvis; lateralibus longis subcurvisque; margaritâ albâ et iridescente. *Hab.* Big Pigeon River, Tenn.—*Mr. S. M. Edgar.*

Unio pusillus. Testâ ovatâ, subcompressâ, posticè angulatâ; valvulis subtenuibus; natibus subprominentibus; epidermide tenebroso-fuscâ, nitidâ; dentibus cardinalibus minimis; lateralibus longis subcurvisque; margaritâ albâ et iridescente. *Hab.* Ogechee River, Ga.—*Major Le Conte.*

Unio amœnus. Testâ ovatâ, subcompressâ, valdè inæquilaterali; valvulis subcrassis; natibus sub-prominentibus; epidermide tenebrosâ, densè radiatâ; dentibus cardinalibus parvis erectisque; lateralibus longis subcurvisque; margaritâ albâ et iridescente. *Hab.* Holston River, Tenn.—*Mr. S. M. Edgar.*

Unio incrassatus. Testâ plicatâ, triangulari, subinflatâ; valvulis crassis; natibus subprominentibus; epidermide subnigrâ; dentibus cardinalibus parvis; lateralibus longis subrectisque; margaritâ salmonis colore tinctâ, vel purpureâ vel albâ et iridescente. *Hab.* Chattahoochee River, near Columbus, Ga.—*Dr. Boykin.*

Unio Boydianus. Testâ obovatâ, subinflatâ, valdè inæquilaterali; valvulis subtenuibus; natibus subprominentibus, ad apices undulatis; epidermide luteo fuscâ; dentibus cardinalibus compressis; lateralibus longis subrectisque; margaritâ albâ et iridescente. *Hab.* Oak Orchard Creek, Orleans County, N. Y.—*Dr. Boyd.*

Unio Sloatianus. Testâ plicatâ, oblongâ, subcompressâ, valdè inæquilaterali; valvulis crassis; natibus subprominentibus; epidermide subnigrâ; dentibus cardinalibus subgrandibus; lateralibus crassis et longis; margaritâ albâ et purpurea. *Hab.* Chattahoochee River, Ga.—*Mr. L. W. Sloat.*

Unio paulus. Testâ ovatâ, inflatâ, minimâ; valvulis crassis; natibus subprominentibus; epidermide subnigra; dentibus cardinalibus parvis, lateralibus longis curvisque; margaritâ albâ et iridescente. *Hab.* Chattahoochee River, Columbus, Ga.—*Dr. Boykin.*

Unio strigosus. Testâ transversâ, compressâ, valdè inæquilaterali; posticè triangulatâ; valvulis subtenuibus; natibus subprominentibus, compressis; epidermide tenebroso-fuscâ; dentibus cardinalibus parvulis, lateralibus longis subrectisque; margaritâ purpureâ et iridescente. *Hab.* Chattahoochee River, Columbus, Ga.—*Dr. Boykin.*

Unio lineatus. Testâ ovatâ inflatâ; valvulis tenuibus; natibus subprominen-

tibus, ad apices undulatis; epidermide luteâ, radiatâ nitidâ; dentibus cardinalibus parvis, lamellatis; lateralibus parvis subcurvisque; margaritâ salmonis colore tinctâ et iridescente. *Hab.* Chattahoochee River, Columbus, Ga.—*Dr Boykin.*

Unio exiguus. Testâ ovatâ subcompressâ; valvulis tenuibus; natibus subprominentibus; epidermide tenebrosâ, viride-radiatâ, nitidâ; dentibus cardinalibus lamellatis, lateralibus longis subcurvisque; margaritâ cæruleâ et iridescente. *Hab.* Chattahoochee River, Columbus, Ga.—*Dr. Boykin.*

Unio tortivus. Testâ ovatâ, compressâ, emarginatâ; valvulis subtenuibus; natibus subprominentibus, compressis; epidermide tenebroso-fuscâ, striatâ; dentibus cardinalibus parvulis, lateralibus longis curvisque; margaritâ purpureâ et iridescente. *Hab.* Chattahoochee River, Columbus, Ga.—*Dr. Boykin.*

Unio subangulatus. Testâ ovatâ, subinflatâ, posticè subangulata; valvulis tenuibus; natibus subprominentibus: epidermide luteâ, radiatâ, politâ; dentibus cardinalibus subgrandibus erectisque, lateralibus sublongis subrectisque; margaritâ salmonis colore tinctâ et iridescente. *Hab.* Chattahoochee River, Columbus, Ga.—*Dr. Boykin.*

Unio striatus. Testâ ovatâ, compressâ; valvulis tenuibus; natibus subprominentibus; epidermide striatâ, rubiginis colore; dentibus cardinalibus parvis; lateralibus sublongis subrectisque; margaritâ salmonis colore tinctâ et iridescente. *Hab.* Chattahoochee River, Columbus, Ga.—*Dr. Boykin.*

Unio fatuus. Testâ transversâ, compressâ, emarginatâ; valvulis subcrassis; natibus parvis; epidermide subviride, radiatâ; dentibus cardinalibus parvis, lateralibus longis subcurvisque; margaritâ albâ et iridescente. *Hab.* Holston River, Tenn.—*Dr. Currey.*

Unio dactylus. Testâ transversâ, subinflatâ; valvulis tenuibus; natibus prominulis; epidermide luteâ; dentibus cardinalibus minimis erectisque; lateralibus longis subcurvisque; margaritâ albâ et iridescente. *Hab.* Cany Fork River, Tenn.—*Mr. S. M. Edgar.*

Unio obtusus. Testâ obovatâ, inflatâ, posticè rotundatâ; valvulis subcrassis; natibus subprominentibus; epidermide luteâ, nitidâ; dentibus cardinalibus subgrandibus; lateralibus longis subrectisque; margaritâ albâ et iridescente. *Hab.* Chattahoochee River, Columbus, Ga.—*Dr. Boykin.*

Unio Boykinianus. Testâ alatâ, plicatâ, triangulari, subcompressâ; valvulis crassis; natibus prominulis; epidermide tenebroso-fuscâ; dentibus cardinalibus parvis, lateralibus sublongis; margaritâ albâ et iridescente. *Hab.* Chattahoochee River, Columbus, Ga.—*Dr. Boykin.*

Unio Edgarianius. Testâ triangulari, compressâ, emarginatâ; valvulis crassis, natibus elevatis; epidermide luteâ, valdè radiatâ; dentibus cardinalibus magnis, lateralibus rectis; margaritâ albâ et iridescente. *Hab.* Holston River, Tenn.—*Prof. Troost* and *Dr. Currey.* Tennessee River, at Florence, Ala.—*Mr. T. R. Dutton.*

Unio biangularis. Testâ obovatâ, inflatâ, posticè biangulari; valvulis tenuibus; natibus subprominentibus; epidermide tenebroso-fuscâ, radiatâ; dentibus cardinalibus subgrandibus elevatis, lateralibus subgrandibus, curvisque; margaritâ albâ et iridescente. *Hab.* Cany Fork River, Tenn.—*Prof. Troost* and *Mr. S. M. Edgar.*

Unio nitens. Testâ ellipticâ, transversâ, subinflatâ; valvulis subtenuibus; natibus subprominentibus; epidermide tenebroso-fuscâ; dentibus cardinalibus

parvis elevatis; lateralibus longis subrectisque; margaritâ cupreâ, splendidissimâ, et iridescente. *Hab.* Long Creek, Cocke Co., Tenn.—*Mr. S. M. Edgar.*

Unio Holstonensis. Testâ triangulari, solidâ, inflatâ; valvulis crassis; natibus magnis, elevatis; epidermide tenebroso-fuscâ, radiatâ; dentibus cardinalibus subgrandibus, lateralibus crassis brevibusque; margaritâ albâ et iridescente. *Hab.* Holston River, Tenn.—*Mr. S. M. Edgar.*

Unio dolabelloides. Testâ sub-rotundâ, subinflatâ; valvulis crassissimis; natibus valdè elevatis; epidermide fuscâ, radiatâ; dentibus cardinalibus minimis, lateralibus brevibus rectisque; margaritâ albâ et iridescente. *Hab.* Holston River, Tenn.—*Mr. S. M. Edgar.*

Unio Tennesseensis. Testâ ellipticâ, transversâ, inflatâ; valvulis crassis; natibus subprominentibus; epidermide luteâ; dentibus cardinalibus magnis erectisque, lateralibus magnis subcurvisque; margaritâ albâ et iridescente. *Hab.* Stone's River, Tenn.—*Mr. S. M. Edgar.*

Unio atro-marginatus. Testâ plicatâ, oblongâ, compressâ; valvulis subtenuibus; natibus prominulis; epidermide tenebrosâ; dentibus cardinalibus parvis, lateralibus longis subrectisque; margaritâ purpureâ et valdè iridescente. *Hab.* Chattahoochee River, Columbus, Ga.—*Dr. Boykin.*

Unio Bournianus. Testâ triangulari, compressâ; valvulis crassis; natibus elevatis incurvis, ad apices undulatis; epidermide luteâ, densè radiatâ; dentibus cardinalibus subgrandibus, lateralibus subcurvis; margaritâ albâ et iridescente. *Hab.* Sciota River, near Chillicothe, Ohio.—*Mr. A. Bourne.*

Margaritana Vondenbuschiana. Testâ obovatâ, compressâ, inæquilaterali; valvulis tenuibus; natibus subprominentibus; epidermide luteo-fuscâ; dentibus cardinalibus parvis, tuberculatis; margaritâ albâ et iridescente. *Hab.* Java.—*G. Von den Busch, M.D.*

Margaritana Curreyiana. Testâ triangulari, subcompressâ, emarginatâ, sulcatâ; valvulis crassis; natibus subprominentibus, ad apices undulatis; epidermide luteo-fuscâ; dentibus cardinalibus magnis; margaritâ albâ et irideseente. *Hab.* Stone's River, Tenn.—*Dr Currey, of Nashville.*

Anodonta Harpethensis. Testâ ovatâ, inflata, carinatâ; valvulis tenuibus; natibus subprominentibus; apicibus undulatis; epidermide luteâ et viride; margaritâ salmonis colore tinctâ; margine lato. *Hab.* Harpeth River, Tenn.—*Mr. S. M. Edgar.*

Anodonta argentea. Testâ ovatâ, inflatâ, transversâ; valvulis tenuibus; natibus prominulis; apicibus minutè undulatis; epidermide fuscâ, radiatâ; margaritâ argenteâ et iridescente. *Hab.* Stone's River, Tenn.—*Dr. Currey.*

Anodonta ferruginea. Testâ ovatâ, inflatâ; valvulis tenuibus; natibus prominentibus, ad apices minutè undulatis, ferrugineis; epidermide tenebroso-fuscâ, politâ; margaritâ cœruleo-albâ et iridescente. *Hab.* Simon's Creek, Indiana.—*T. G. Lea.*

Anodonta Cowperiana. Testâ ovatâ, valdè inflatâ, gibbosâ; valvulis tenuibus; natibus planulatis, undulatis; epidermide viride-luteâ, obsoletè radiatâ; margaritâ cœruleo-albâ et iridescente. *Hab.* Hopeton, near Darien, Ga.—*J. H. Cowper, Esq.*

Anodonta Maryattiana. Testâ transversâ, valdè inflatâ, gibbosâ, valdè inæquilaterali; natibus prominentibus, ad apices undulatis; epidermide viridoluteâ margaritâ argenteâ et iridescente. *Hab.* Vicinity of Fort Winnebago.—*Capt. Maryatt, R. N.*

Anodonta Footiana. Testâ ovatâ, inflatâ, inæquilaterali; valvulis subtenuis; natibus subprominentibus, ad apices undulatis; epidermide luteo-fuscâ; margaritâ cœruleo-albâ et iridescente. *Hab.* Vicinity of Fort Winnebago.—*Dr. Foot.*

Melania catenaria. Testâ elevato-conoidea, granulatâ, lineatâ; apice plicatâ; suturis parvis; aperturâ ovatâ. *Hab.* Chattahoochee River, Columbus, Ga.—*Dr. Boykin.*

Melania Boykiniana. Testâ elevatâ; subturritâ, granulatâ, ad carinam tuberculatâ; suturis impressis; aperturâ elongato-ovatâ. *Hab.* Chattahoochee River, Columbus, Ga.—*Dr. Boykin.*

Carocolla Cumberlandiana. Testâ lenticulatâ, carinatâ, striatâ, albidâ, fusco-notatâ, latè umbilicatâ, ad carinam supernè et infernè impressâ; anfractibus quinis; aperturâ angulatâ, intus sulcatâ; labro acuto. *Hab.* Cumberland Mts., near Jasper, Tenn.—*Dr. Currey.*

Cyclostoma Cincinnatiensis. Testâ elevato-conicâ, lævi, nitidâ, diaphanâ, umbilicatâ; anfractibus senis; apice obtuso; labro margine reflexo. *Hab.* Vicinity of Cincinnati.—*T. G. Lea.*

Mr. Du Ponceau presented a MS. communication from Mr. Nicollet, entitled "Notions sur la Langue des Sioux," which was referred to the Historical and Literary Committee.

Mr. Lea read a communication from Mr. Nulty, in relation to some points connected with his "Magic Cyclovolute," which was referred to a Committee.

Dr. Patterson, from the Committee on Astronomical Observations, to whom was referred the consideration of the best application of the sum of money in possession of the Society, and collected for the erection of an Astronomical Observatory, reported progress, and exhibited certain designs for an observatory.

Mr. T. Biddle, from the Committee to whom the money had been intrusted, reported the amount in their hands.

The following gentlemen were elected members of the Society:—

Charles Bonnycastle, Professor of Mathematics, &c., in the University of Virginia.

M. François Pierre Guillaume Guizot, of Nismes, in France.